

PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number: 03397-036001
<p>I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Mail Stop AF, Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450.</p> <p>Date of Deposit _____</p> <p>Signature _____</p> <p>Typed or Printed Name of Person Signing Certificate _____</p>	Application Number 10/046,666	Filed January 16, 2002
	First Named Inventor John C. Hardwick	
	Art Unit 2626	Examiner Paul V. Harper

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- applicant/inventor.
- assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b)
is enclosed. (Form PTO/SB/96)
- attorney or agent of record 37,640
(Reg. No.)
- attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34


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NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below'.

Total of 5 pages are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : John C. Hardwick
Serial No. : 10/046,666
Filed : January 16, 2002
Title : SPEECH SYNTHESIZER

Art Unit : 2626
Examiner : Paul V. Harper
Confirmation No.: 1168

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Pursuant to United States Patent and Trademark Office OG Notices: 12 July 2005 - New Pre-Appeal Brief Conference Pilot Program, a request for a review of identified matters on appeal is hereby submitted with the Notice of Appeal. Review of these identified matters by a panel of examiners is requested because the rejections of record are clearly not proper and are without basis, in view of a clear legal or factual deficiency in the rejections. All rights to address additional matters on appeal in any subsequent appeal brief are hereby reserved.

Claims 1-77 are pending in this application, with claims 1 and 38 being independent. Claims 8-15, 17-26, 29-36, 47, 48, 50-58, 66, 67 and 69-77 have been indicated to be directed to allowable subject matter.

Claims 1-6, 16, 27, 28, 37-41, 43, 44, 59, 60, 62 and 63 have been rejected as being unpatentable over Griffin (U.S. Patent No. 5,701,390) in view of Barnwell. Claims 7, 42, 45, 46, 49, 61, 64, 65 and 68 have been rejected as being unpatentable over Griffin in view of Barnwell and allegedly well known prior art. Applicant requests withdrawal of all of these rejections.

Applicant specifically asks the panel to review the issues highlighted below.

1. Griffin and Barnwell do not describe or suggest the subject matter of claim 1, which is directed to synthesizing a set of digital speech samples corresponding to a selected voicing state using first and second digital filters computed from first and second frames of speech model parameters.

Claim 1 is directed to a method of synthesizing a set of digital speech samples corresponding to a selected voicing state (e.g., voiced, unvoiced or pulsed) from speech model parameters. The method includes dividing the speech model parameters into frames that include pitch information, voicing information determining the voicing state in one or more frequency regions, and spectral information. First and second digital filters that have frequency responses that correspond to the spectral information in frequency regions where the voicing state equals the selected voicing state are computed using, respectively, first and second frames of speech model parameters. Then, a set of pulse locations are determined and sets of first and second signal samples are produced from the pulse locations and, respectively, the first and second digital filters. The first signal samples are combined with the second signal samples to produce a set of digital speech samples corresponding to the selected voicing state.

Griffin (U.S. Patent No. 5,701,390), which is commonly assigned with the present application, is directed to a multi-band excitation (“MBE”) system that, like claim 1, employs frames of speech model parameters that include pitch information, voicing information, and spectral information. However, Griffin does not describe or suggest the recited computing of first and second digital filters, or the recited use of the digital filters, along with pulse locations, to produce sets of first and second digital samples that are combined to produce a set of digital speech samples.

Barnwell, which is a chapter from a textbook on speech coding that describes a pitch-excited linear predictive coder (“LPC”), also fails to describe or suggest the recited computing and use of first and second digital filters.

The final rejection indicates that Griffin teaches computing first and second digital filters at Fig. 2 and col. 4, lines 38-65. However, that passage merely mentions that unvoiced frequency band components may be generated from a filter response to a random noise signal, where the filter has a magnitude of approximately the spectral envelope in unvoiced bands and approximately zero in voiced bands. The passage nowhere describes or suggests using the filter in conjunction with pulse locations.

The final rejection also indicates that Griffin teaches the determining of spectral and voicing information for frequency bands of a frame at the abstract and col. 5, lines 58-62, and that the determining of voicing information necessarily determines pulse excitation locations. This conclusion by the Examiner is not understood. Moreover, even assuming for sake of argument that it is correct, it would not lead to the recited use of digital filters in conjunction with the pulse locations since, as noted above, Griffin states that the filter response is to a random noise signal.

Recognizing that Griffin does not describe or suggest determining a set of pulse locations, producing sets of first and second signal samples using the digital filters and the pulse locations, and combining the first and second signal samples to produce digital speech samples, the rejection asserts that doing so was well known, as evidenced by Barnwell. In particular, in response to arguments presented by the applicant, the rejection states:

Barnwell teaches the more specific operations of using voicing information along with spectral information (or filter coefficients) to produce the synthesized output (i.e., pulse generator with pitch locations exciting the filter). When Barnwell's teaching are combined with those of Griffin you get "producing of sets of first and second signal samples using the digital filters and pulse locations", and "the recited combining of the first and second signal samples to produce digital speech samples."

Applicant strongly disagrees. First, the passage of Barnwell identified in the rejection (pages 85-89) merely describes well known LPC techniques and in no way describes or suggests the recited producing of sets of first and second signal samples using the digital filters and the pulse locations, or the recited combining of the first and second signal samples to produce digital speech samples. Accordingly, for at least these reasons, the rejection of claim 1 and its dependent claims should be withdrawn.

2. There would have been no motivation to combine Griffin and Barnwell in the manner set forth in the rejection, since Griffin is directed to MBE coder, and Barnwell is directed to a LPC coder, which is a substantially different class of coder.

Griffin and Barnwell are directed to different classes of coders. As such, nothing in Barnwell's description of a LPC coder would have led one of ordinary skill in the art to modify Griffin's MBE coder to produce a coder such as is recited in the claims. Moreover, the rejection does not identify any such motivation. Rather, the rejection merely asserts that it would have been obvious to do so because Barnwell allegedly describes the features missing from Griffin:

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Griffin by specifically providing the features, as taught by Barnwell, because it was well known in the art at the time of the invention or the purpose of producing synthesized speech at a decoder using low bandwidth transmissions (Barnwell, p. 85, introduction).

While this argument by the Examiner might be said to assert that the motivation to combine the references would come from a desire to reduce the bandwidth required by Griffin's system, there is no indication that such a reduction would result. Indeed, as Griffin's system is already directed to using a low bandwidth (3.6 kbps) system (see col. 5, lines 60-63), it seems likely that attempting to incorporate Barnwell's substantially different approach would result in an increase in the bandwidth requirement.

3. Griffin and Barnwell do not describe or suggest the subject matter of claim 38, which is directed to decoding a stream of bits to produce speech samples corresponding to a subframe by computing impulse responses for the subframe and a previous subframe, and applying pulse locations for the subframe to produce sets of first and second signal samples that are combined to produce the speech samples.

Claim 38 is directed to decoding digital speech samples corresponding to a selected voicing state from a stream of bits. The stream of bits is divided into a sequence of frames that each contain one or more subframes. Speech model parameters are decoded from the stream of bits for each subframe in a frame, with the decoded speech model parameters including at least pitch information, voicing state information and spectral information. A first impulse response is

Applicant : John C. Hardwick
Serial No. : 10/046,666
Filed : January 16, 2002
Page : 5 of 5

Attorney's Docket No.: 03397-036001

computed from the decoded speech model parameters for a subframe, and a second impulse response is computed from the decoded speech model parameters for a previous subframe. Thereafter, a set of pulse locations is computed for the subframe, and sets of first and second signal samples are produced from the pulse locations and, respectively, the first and second impulse responses.

Griffin and Barnwell fail to describe or suggest the subject matter of claim 38 for the reasons discussed above with respect to claim 1. In addition, neither Griffin nor Barnwell anywhere describes or suggests applying pulse locations for a subframe to an impulse response computed using decoded speech model parameters for the subframe and decoded speech model parameters for a previous subframe. Nor does the rejection provide any indication of where such application may be found in Griffin or Barnwell.

Applicant submits that all claims are in condition for allowance.

The fee in the amount of \$620 in payment of the appeal fee (\$500) and the one-month Petition for Extension of Time fee (\$120) is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 7/24/06


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